

PATENT

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Kaviraj Singh, *et al.*

Examiner: Kenneth Tang

Serial No: 09/346,194

Art Unit: 2127

Filing Date: July 1, 1999

Title: WORKFLOW AS DATA-TRANSITION DRIVEN, SCRIPTABLE STATE MACHINES

Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

## APPEAL BRIEF

Dear Sir:

Applicants' representative submits this brief in connection with an appeal of the above-identified patent application. A credit card payment form is filed concurrently herewith in connection with all fees due regarding this appeal brief. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [MSFTP238US].

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**I. Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))**

The real party in interest in the present appeal is Microsoft Corporation, the assignee of the present application.

**II. Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))**

Appellants, appellants' legal representative, and/or the assignee of the present application are not aware of any appeals or interferences which may be related to, will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**III. Status of Claims (37 C.F.R. §41.37(c)(1)(iii))**

Claims 1, 18, 27 and 30-39 have been cancelled. Claims 2-17, 19-26 and 28-29 stand rejected by the Examiner. The rejection of claims 2-17, 19-26 and 28-29 is being appealed.

**IV. Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))**

Claims 30-39 were cancelled in the Reply to Advisory Action (dated November 12, 2004).

**V. Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))****A. Independent Claim 2**

Independent claim 2 recites a computer-readable medium having computer-executable instructions to cause a computing system to perform a method comprising: creating a data table in a server database; creating a workflow table in the server database, wherein the workflow table is associated with the data table, wherein each row in the workflow table represents a workflow step containing workflow rules and associated code defined by script functions; receiving a data modification request in the server database; invoking a workflow engine using server database triggers; and evaluating a condition and executing an action for at least one workflow step. (*See e.g.*, page 16, line 26-page 17, line 13).

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**B. Independent Claim 4**

Independent claim 4 recites a workflow system comprising: a server database including a data table and an associated workflow table, the data table includes workflow triggers; a workflow extended store coupled to the server database and to the workflow triggers, the workflow triggers invoke the workflow extended store; a workflow engine coupled to the server database and to the workflow extended store; and a script engine coupled to the workflow engine. (*See e.g.*, page 9, line 20-page 10, line 26).

**C. Independent Claim 11**

Independent claim 11 recites a workflow system comprising: a server database including a workflow enabled data table and an associated workflow table, wherein each row in the workflow table comprises a workflow step, and the workflow enabled data table includes workflow triggers; a workflow extended store coupled to the server database, where data modifications submitted to the workflow enabled data table invokes the workflow extended store; a workflow engine coupled to the server database, to the workflow extended store, and to the workflow table; and a script engine coupled to the workflow engine. (*See e.g.*, Fig. 2 and page 9, line 20-page 10, line 26).

**D. Independent Claim 17**

Independent claim 17 recites a workflow system comprising: a server database including a data table and an associated workflow table, wherein each row in the workflow table comprises a workflow step, and wherein the system further includes workflow triggers defined on the data table; a workflow extended store communicatively coupled to the server database, wherein the workflow triggers analyze a data modification request submitted to the data table and invoke the extended store; a workflow engine communicatively coupled to the server database, to the workflow extended store, and to the workflow table; and a script engine communicatively coupled to the workflow engine. (*See e.g.*, page 9, line 1-page 10, line 26).

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**E. Independent Claim 23**

Independent claim 23 recites a computing method comprising: creating a data table in a server database; creating a workflow table in the server database, wherein the workflow table is associated with the data table, wherein each row in the workflow table represents a workflow step; receiving a data modification request in the server database; invoking a workflow engine using server database triggers; and evaluating a condition and executing an action for each workflow step using a script engine which is invoked by the workflow engine. (See e.g., page 16, line 26-page 17, line 13).

**F. Independent Claim 29**

Independent claim 29 recites a computer comprising: a processor; a computer-readable medium; a server database having a workflow enabled data table and an associated workflow table, the workflow enabled data table includes workflow triggers; a workflow extended store coupled to the server database and the workflow triggers; a workflow engine coupled to the server database and to the workflow extended store; and a script engine coupled to the workflow engine. (See e.g., page 5, line 15-page 10, line 26).

**VI. Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))**

**A.** Claims 2-3, 23-26 and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okita *et al.* (US 6,225,998 B1) in view of Bacon *et al.* (US 6,430,538).

**B.** Claims 17, 19 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okita *et al.* in view of Rosenthal *et al.* (US 6,311,192 B1), and further in view of Hoffecker *et al.* (US 5,325,505).

**C.** Claims 21 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okita *et al.* in view of Rosenthal *et al.*, further in view of Hoffecker *et al.* and further in view of Flores *et al.* (US 6,073,109).

**D.** Claims 4-16 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gabbita *et al.* (US 6,349,238 B1) in view of Du *et al.* (US 6,078,982).

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**VII. Argument (37 C.F.R. §41.37(c)(1)(vii))****A. Rejection of Claims 2-3, 23-26 and 28 Under 35 U.S.C. §103(a)**

Claims 2-3, 23-26 and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okita *et al.* (US 6,225,998 B1) in view of Bacon *et al.* (US 6,430,538). Withdrawal of this rejection is respectfully requested for at least the following reasons. Okita *et al.* and Bacon *et al.*, either individually or in combination, do not teach or suggest each and every limitation set forth in the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP §706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must be found in the prior art and not based on the Applicant's disclosure*. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Independent claims 2 and 23 recite similar claim limitations, namely: creating a data table in a server database, creating a workflow table in the server database, wherein the workflow table is associated with the data table, wherein each row in the workflow table represents a workflow step containing workflow rules and associated code defined by script functions, receiving a data modification request in the server database, invoking a workflow engine using server database triggers, and evaluating a condition and executing an action for at least one workflow step. It is apparent that the invention as claimed creates two tables in a server database – a data table and a workflow table. Further, the subject claims recite that the two tables that are created in the server database are associated with one another. In addition, the recited claims provide that the workflow table, in addition to being associated with the data table, also contains workflow rules and

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associated code defined by script functions, such that the workflow rules and associated code are organized as rows within the workflow table. Furthermore, the subject claims recite that upon receipt of a data modification request in the server database, the computer system upon which the claimed invention executes invokes a workflow engine that utilizes server database triggers to evaluate a condition and execute an action for at least one workflow step. Okita *et al.* and Bacon *et al.* fail to teach or suggest these aspects of applicants' claimed invention.

Okita *et al.* discloses a system, method, and article of manufacture for displaying visual primitives of a transaction through a transaction processing system. (See Abstract). In the Advisory Action (dated November 12, 2004), it was asserted that Okita *et al.* taught a database server at col. 4, lines 62-63, and that it was commonly known that in database systems, all information is stored in the form of tables. While applicants' representative does not disagree with the characterization that Okita *et al.* provides a database, and that database systems generally store information in the form of tables, the point at issue is neither the fact that a database system is merely disclosed in Okita *et al.*, nor that all information in a database system is typically stored in the form of tables. Rather, the point of contention is that the invention as claimed recites the creation of two distinct tables in the server database, and that the two tables that are created in the server database are associated with one another. Okita *et al.* does not teach or suggest this particular aspect in the passages indicated in either the Final Office Action (dated August 13, 2004) or in the Advisory Action (dated November 12, 2004). Rather, the indicated passage appears to provide for the compilation of workflow diagrams into a single routing table, wherein the routing table comprises routing instructions and routing procedures.

In addition, the Advisory Action asserted that Okita *et al.* taught defining and generating (creating) routing tables where each table defines (creates) a workflow at col. 1, lines 31-37 and lines 48-55. While applicants' representative agrees that the noted passage utilizes a routing table that defines a workflow for describing how telephone calls and other transactions are distributed to agents, the cited passages disclose the creation of only one table – the routing table. The invention as claimed, in contrast, teaches the creation of two tables in the server database – a data table and a workflow

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table. Further, the claimed invention recites that the data table and workflow table are associated together. Thus, applicants' representative is perplexed as to how Okita *et al.*, since it only discloses one table, can associate the disclosed routing table to a second table that the cited document neither teaches nor suggests.

Further, the Advisory Action argued that Okita *et al.* specifically discloses receiving a data modification request in the server database at col. 1, lines 40-55, because the Examiner deems the noted passage as teaching editing or modifying the routing (workflow) tables in the server. As was noted in the Reply to Advisory Action, the cited passage fails to teach or suggest receiving a data modification request in the server database. Rather, Okita *et al.* discloses that software tools may be used to create various components. Further, the cited passage provides that because different users have different transaction flow requirements the system for each user may become a confusing mosaic of interdependent applications, each created and maintained by different software tools. The cited passage also provides that multiple software tools increase the difficulty in coordinating workflows across distributed execution environments and that the generation of routing tables or routing procedures to control transaction flows requires computer programming skill. In addition, the cited section states that specific training is required to learn how to generate routing tables and that specialized knowledge and training is required to generate routing tables and to edit or modify existing routing tables. The indicated passage, however, is silent regarding receiving a data modification request in the server database as is recited in the subject claims.

The Advisory Action further asserts that Okita *et al.* discloses, albeit not explicitly, invoking a workflow engine using server database triggers, at col. 10, line 55-col.11, line 2, the Examiner's rationale being that because Okita *et al.* suggests that workflows are initiated by modifiable event triggers, the workflow system disclosed by the cited document must therefore use some sort of workflow engine. Applicants' representative respectfully disagrees for the following reason. Okita *et al.* discloses an application workflow editor, rather than a workflow engine. An engine is a program that performs core or essential functions for other programs, *i.e.*, the engine coordinates the overall operation of other programs. An editor, in contrast, is a standalone computer program that allows a user to enter, change and store data. In conformance with the

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generally recognized connotation of an engine, the invention as claimed utilizes a workflow engine to: invoke a script engine; compare data change information with a workflow definition contained in a workflow table loaded into the workflow engine; determine the appropriate step that needs to be executed; check the appropriate execution permissions on the determine step, if execution permission is granted, evaluate the step condition, and if the determined step condition is true, execute the step action. *See e.g.*, page 10, lines 16-26. Okita *et al.*, in contrast, discloses a workflow editor that provides a workflow diagram containing visual primitives of a transaction flow through a transaction processor to either a serializer or a CCT compiler. Thus, apart from utilizing a workflow editor to generate, edit and display various types of workflow that define the operation of a transaction process, the cited document does nothing more than provide a workflow diagram to a serializer or a CCT compiler.

The Examiner's contention is that because Okita *et al.* suggests the initiation of workflows by modifiable event triggers, the cited document must therefore use some sort of workflow engine. While applicants' representative recognizes that Okita *et al.* must implicitly utilize a facilitating mechanism to achieve its ends, the fact still remains that the indicated passage, *viz.*, col. 10, line 55-col. 11, line 2, fails to intimate the use of an engine as would be understood by one ordinarily skilled in the art. Moreover, the invention as claimed utilizes server database triggers, rather than event triggers as disclosed in Okita *et al.*, to invoke a workflow engine. Server database triggers are specific to server databases and correspond to distinct and particular operations unique to server database query languages. Event triggers, in contrast, and as disclosed in Okita *et al.*, are events, not confined by the closed universe of a server database query language, that impose a transition from one state to the next. Thus, it is apparent that Okita *et al.* fails to teach or suggest the invocation of a workflow engine using server database triggers.

Further, and as the Examiner concedes, Okita *et al.* fails in particular to teach or suggest the limitation of receiving a data modification request in the server database. To rectify the lack of teaching of this salient aspect of applicants' claimed invention the Examiner asserts that Bacon *et al.* provides the necessary teaching to cure the deficiency rendered by Okita *et al.* Applicants' representative contends that while Bacon *et al.* may



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provide "logic to receive the participant entered data and to modify the work item ... and logic to provide the modifiable work item to the server ..." See claim 2; Bacon *et al.* does not receive a modification request in the server database. Thus, for the reasons stated above with respect to Okita *et al.*, Bacon *et al.* also fails to teach or suggest the limitations recited in the subject claims, and in particular, Bacon *et al.* fails to rectify the particular deficiencies identified by applicants' representative with respect to the teaching of Okita *et al.*

In view of the foregoing, since Okita *et al.* fails to teach or suggest a substantial portion of the limitations recited in the subject claims, and because Bacon *et al.* does not rectify the identified deficiencies, let alone the particular deficiency for which the Examiner offers Bacon *et al.*, it is respectfully requested that this rejection be withdrawn with respect to independent claims 2 and 23 (and associated dependent claims).

**B. Rejection of Claims 17, 19 and 20 Under 35 U.S.C. §103(a)**

Claims 17, 19 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okita *et al.* in view of Rosenthal *et al.* (US 6,311,192 B1), and further in view of Hoffecker *et al.* (US 5,325,505). This rejection should be reversed for at least the following reasons. The combination of Okita *et al.*, Rosenthal *et al.* and Hoffecker *et al.* fails to teach or suggest all claim limitations set forth in the subject claims.

Independent claim 17 recites: a server database including a data table and an associated workflow table, wherein each row in the workflow table comprises a workflow step, and wherein the system further includes workflow triggers defined on the data table. The Examiner in the Final Office Action (dated August 13, 2004) claimed that Okita *et al.* taught this particular limitation. However, as discussed above with respect to independent claims 2 and 23, Okita *et al.* in particular fails to disclose a server database that includes a data table and a workflow table that are associated with one another. Further, as stated *supra*, Okita *et al.* fails to disclose workflow triggers defined on the data table. At best the cited document provides event triggers that initiate workflows such that an event trigger associates a particular event with one or more workflows.

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In addition, the Final Office Action asserted that Okita *et al.* disclosed a workflow extended store communicatively coupled to the server database, but as was stated in applicants' response to the Final Office Action, and is reiterated herein, Okita *et al.* discloses a Call Center Database and a Local Storage Device, but the two are not communicatively coupled to each other. Rather what Okita *et al.* does show is that the Local Storage Device is coupled to a Serializer, the Serializer is coupled to both an Application Workflow Editor and an Object Management Client, the Object Management Client is coupled to an Object Management Server, and the Object Management Server is coupled to a Call Center Database. The Examiner, in the Advisory Action (dated November 12, 2004), concedes that there does not exist a direct coupling between the Call Center Database and the Local Storage Device, but nevertheless maintains that there is an indirect coupling. Applicants' representative avers that the Examiner is straining the bounds of reasonableness in putting forth this argument. While applicants' representative acknowledges that there exists an indirect link between the Local Storage Device and the Call Center Database, the limitation as recited in the subject claim relates to a workflow extended store communicatively coupled to the server database. One of ordinary skill in the art would perceive such a limitation as imputing a direct connection between the Local Storage Device and the Call Center Database, not as the Examiner appears to suggest, an indirect coupling through a multitude of intermediary devices.

Moreover, in the Final Office Action, the Examiner asserted that Okita *et al.* disclosed a script engine communicatively coupled to the workflow engine. As was stated in the Reply to Final Office Action, and is restated herein, there does not exist within the cited document either a workflow engine or a script engine, thus it is implausible for the Examiner to argue that these nonexistent entities can be coupled to one another. The Examiner nevertheless argued in the Advisory Action: "a workflow engine has to have instruction scripts in order to execute workflows and Okita *et al.* teaches executing workflows." While applicants' representative does not contest the fact that a workflow engine, if one were disclosed in Okita *et al.*, must have instruction scripts in order to execute workflows, the fact remains that the cited document fails to provide the workflow engine, let alone a specified script engine upon which to execute the

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instruction scripts. Thus, it is submitted that Okita *et al.* fails to teach or suggest this novel feature of the invention as claimed.

In order to rectify the deficiencies presented by Okita *et al.*, the Examiner offers Rosenthal *et al.* and Hoffecker *et al.* The Examiner attempts to utilize Rosenthal *et al.* to cure Okita *et al.*'s failure to disclose a server database including a data table and an associated workflow table; and Hoffecker *et al.* to rectify Okita *et al.*'s failure to divulge a workflow extended store communicatively coupled to the server database. As was stated in the Reply to Final Office Action with regard to Rosenthal *et al.*, Rosenthal *et al.* does not disclose the fact that the two tables – the data table and workflow table – reside in the server database. Rather, Rosenthal *et al.* clearly shows in Fig. 1 that two tables reside in a supplemental routine interposed between a SAP component and the database component, and as such both Okita *et al.* and Rosenthal *et al.* fail to disclose the limitation for which the Examiner relies upon Rosenthal *et al.* to cure.

With respect to the teachings of Hoffecker *et al.*, the Examiner asserted in the Final Office Action that it is common knowledge to couple an extended store with a server database. While applicants' representative agrees with the Examiner that it is common knowledge to couple an extended store with a server database, and that col. 1, lines 28-30 of Hoffecker *et al.* is illustrative of this common perception, it is not commonly known by persons skilled in the art to couple a workflow extended store to the server database in such a way that the workflow triggers analyze a data modification request submitted to the data table and then for the workflow triggers to invoke an extended store. Thus, it is submitted that neither Okita *et al.* nor Hoffecker *et al.* disclose this exemplary feature of the invention as claimed.

In view of at least the foregoing, it is submitted that the combination of Okita *et al.*, Rosenthal *et al.* and Hoffecker *et al.* do not teach or suggest each and every limitation set forth in the subject claims. Accordingly, the rejection with respect to independent claim 17, and associated dependent claims, should be withdrawn.

**C. Rejection of Claims 21 and 22 Under 35 U.S.C. §103(a)**

Claims 21 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okita *et al.* in view of Rosenthal *et al.*, further in view of Hoffecker *et*

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*al.* and further in view of Flores *et al.* (US 6,073,109). Reversal of this rejection is respectfully requested for at least the following reasons. Claims 21 and 22 depend from independent claim 17, and as discussed above, the combination of Okita *et al.*, Rosenthal *et al.* and Hoeffcker *et al.* fails to teach or suggest all the limitations set forth in independent claim 17, and Flores *et al.* does not make up for the aforementioned deficiencies. Accordingly, this rejection should be reversed with respect to dependent claims 21 and 22.

**D. Rejection of Claims 4-16 and 29 Under 35 U.S.C. §103(a)**

Claims 4-16 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gabbita *et al.* (US 6,349,238 B1) in view of Du *et al.* (US 6,078,982). Withdrawal of this rejection is respectfully requested for at least the following reasons. Gabbita *et al.* and Du *et al.*, either alone or in combination, fail to teach or suggest each and every limitation set forth in the subject claims.

As has been stated above, applicants' claimed invention relates to a computing workflow system having process definitions represented in a workflow table. Independent claims 4, 11 and 29 recite similar claim limitations namely: a server database including a data table and an associated workflow table, the data table includes workflow triggers; a workflow extended store coupled to the server database and to the workflow triggers, the workflow triggers invoke the workflow extended store; a workflow engine coupled to the server database and to the workflow extended store; and a script engine coupled to the workflow engine.

Gabbita *et al.* discloses a workflow management system for managing and tracking new telecommunications service orders from order entry through provisioning and testing. See col. 1, lines 12-24. The Examiner asserts that Gabbita *et al.* provides substantiation for effectively all the limitations presented in the subject claims. Applicants' representative avers to the contrary. In particular, the Examiner, in the Final Office Action (dated August 13, 2004), relies upon Gabbita *et al.*, col. 4, lines 56-64, as disclosing a workflow enabled data table. Gabbita *et al.* at the indicated passages, however, does not teach or suggest a workflow enabled data table, but rather discloses a repository of data associated with the processing and tracking of orders.

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The Examiner further relies on Gabbita *et al.*, col. 21, lines 52-60, to teach a workflow table that includes workflow rules and associated code. However, as was stated in the Reply to the Final Office Action, and is restated herein, the noted passage does not provide a workflow table that includes associated code. All that is apparent is that Gabbita *et al.* provides a tabular representation of workflow steps, but unlike the subject claims, the tabular representation of the workflow steps does not include associated code.

Additionally, the Examiner contended in the Final Office Action that Gabbita *et al.*, at Figs. 1A, 1B and 6, and col. 4, lines 56-64 and col. 5, lines 20-48, provides a workflow extended store coupled to the workflow enabled data table and the workflow table, the workflow extended store including extended store procedures. As has been argued above, Gabbita *et al.* does not provide the workflow enabled data table as recited in the subject claims. Consequently, it is apparent that Gabbita *et al.* cannot possibly provide a workflow extended store that is coupled to both the workflow enabled data table and the workflow table, wherein the workflow extended store includes extended store procedures.

Further, the Examiner in the Final Office Action conceded that Gabbita *et al.* fails to explicitly teach workflow triggers coupled to the data table and extended store, and indicated that Du *et al.* rectified this lack of teaching. However, it is submitted that Du *et al.* fails to overcome the aforementioned deficiencies with respect to Gabbita *et al.* upon which the Examiner places implicit reliance in relation to the other limitations presented in the subject claims. Accordingly, since Gabbita *et al.* and Du *et al.*, either alone and/or in combination, fail to teach or suggest all the limitations set forth in the subject claims this rejection should be withdrawn with respect to independent claims 4, 11 and 29 (and claims that depend there from).

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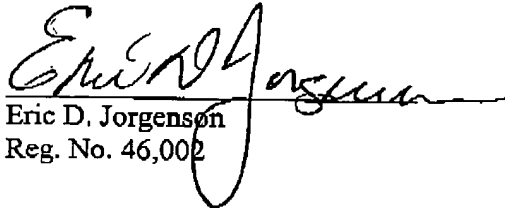
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**E. Conclusion**

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 2-17, 19-26 and 28-29 be reversed.

If any additional fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Respectfully submitted,  
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**VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))**

1. (Cancelled)
2. A computer-readable medium having computer-executable instructions to cause a computing system to perform a method comprising:
  - creating a data table in a server database;
  - creating a workflow table in the server database, wherein the workflow table is associated with the data table, wherein each row in the workflow table represents a workflow step containing workflow rules and associated code defined by script functions;
  - receiving a data modification request in the server database;
  - invoking a workflow engine using server database triggers; and
  - evaluating a condition and executing an action for at least one workflow step.
3. The method of claim 2, wherein evaluating a condition and executing an action for at least one workflow step includes using a script engine which is invoked by the workflow engine.
4. A workflow system comprising:
  - a server database including a data table and an associated workflow table, the data table includes workflow triggers;
  - a workflow extended store coupled to the server database and to the workflow triggers, the workflow triggers invoke the workflow extended store;
  - a workflow engine coupled to the server database and to the workflow extended store; and
  - a script engine coupled to the workflow engine.
5. The workflow system of claim 4 wherein the workflow table is communicatively coupled to the workflow engine.

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6. The workflow system of claim 4 wherein each column in the data table comprises a workflow state.
7. The workflow system of claim 4 wherein each row in the workflow table comprises a workflow step.
8. The workflow system of claim 4 wherein the workflow table comprises a set of workflow rules and associated code to be executed by the workflow engine, wherein a workflow table is defined for each data table that needs to enforce integrity of data changes.
9. The workflow system of claim 4 wherein the extended store comprises a data set having the necessary information to enforce a workflow step.
10. The workflow system of claim 4 wherein the workflow engine receives information on a workflow event from the extended store and maps the information against a cached copy of the workflow table and executes an appropriate workflow step.
11. A workflow system comprising:
  - a server database including a workflow enabled data table and an associated workflow table, wherein each row in the workflow table comprises a workflow step, and the workflow enabled data table includes workflow triggers;
  - a workflow extended store coupled to the server database, where data modifications submitted to the workflow enabled data table invokes the workflow extended store;
  - a workflow engine coupled to the server database, to the workflow extended store, and to the workflow table; and
  - a script engine coupled to the workflow engine.



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12. The workflow system of claim 11, wherein each workflow step is triggered by a workflow event selected from the group comprising state events, transition events, and timeout events.
13. The workflow system of claim 12, wherein a state event is associated with a single workflow state and is executed every time the event associated with the workflow state is triggered.
14. The workflow system of claim 13, wherein the execution of a state event depends on how a workflow state is entered or exited.
15. The workflow system of claim 12, wherein a transition event is associated with a change from a current workflow state to a new workflow state, wherein the current and the new workflow states are defined by a transition workflow step, and wherein the transition event is executed upon a requested state transition where the current and the new workflow state match the transition workflow step.
16. The workflow system of claim 12, wherein a timeout event is associated with a timeout job, wherein the timeout event can be either a state event or a transition event, and wherein the timeout event is triggered by the timeout job.
17. A workflow system comprising:
- a server database including a data table and an associated workflow table, wherein each row in the workflow table comprises a workflow step, and wherein the system further includes workflow triggers defined on the data table;
  - a workflow extended store communicatively coupled to the server database, wherein the workflow triggers analyze a data modification request submitted to the data table and invoke the extended store;
  - a workflow engine communicatively coupled to the server database, to the workflow extended store, and to the workflow table; and
  - a script engine communicatively coupled to the workflow engine.

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18. (Cancelled):

19. The workflow system of claim 17, wherein the system further includes a session object communicatively coupled to the server database, wherein the session object comprises a set of properties for a workflow event, a set of data on the current user, a database user list, and a data set of user permission.

20. The workflow system of claim 19, wherein the system further includes a number of workflow support functions which operate in conjunction with the session object and implement a number of workflow tasks including sending email and finding a user's manager.

21. The workflow system of claim 17, wherein the system further includes a timeout agent implemented as a server job, wherein the timeout agent is scheduled to run with a definable frequency, and wherein the timeout agent scans the server database and executes a timeout workflow event when the database indicates such a timeout workflow event is due.

22. The workflow system of claim 21, wherein the timeout agent performs an update in the data table and triggers an association workflow action upon timeout workflow events which define a state transition.

23. A computing method comprising:  
creating a data table in a server database;  
creating a workflow table in the server database, wherein the workflow table is associated with the data table, wherein each row in the workflow table represents a workflow step;  
receiving a data modification request in the server database;  
invoking a workflow engine using server database triggers; and

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evaluating a condition and executing an action for each workflow step using a script engine which is invoked by the workflow engine.

24. The method of claim 23, wherein invoking the workflow engine includes comparing the data modification request with a workflow definition in the workflow table and determining the appropriate workflow step to be executed.

25. The method of claim 23, wherein evaluating a condition and executing an action for each workflow step includes checking execution permissions on each workflow step.

26. The method of claim 23, wherein creating a workflow table with each row in the workflow table representing a workflow step includes defining a condition and an action for each workflow step using script functions.

27. (Cancelled):

28. The method of claim 23, wherein evaluating a condition and executing an action for each workflow step includes committing the data modification request to the data table in the server database.

29. A computer comprising:  
a processor;  
a computer-readable medium;  
a server database having a workflow enabled data table and an associated workflow table, the workflow enabled data table includes workflow triggers;  
a workflow extended store coupled to the server database and the workflow triggers;  
a workflow engine coupled to the server database and to the workflow extended store; and  
a script engine coupled to the workflow engine.

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30 – 39. (Cancelled)

**IX. Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))**

None.

**X. Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))**

None.

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